

U.S. Patent Application Serial No. 09/817,366
Response dated November 12, 2003
Reply to OA of May 12, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A method of fabricating a temperature control device
~~wherein a method of fabricating a temperature control device~~ (1) equipped with a temperature
control element (2) configured by soft-soldering a thermionic element (9) between ~~[[the]]~~ a pair of
opposed electrodes (7) and (8) and a pair of heat conduction plates (3) and (4) disposed respectively
on outside surfaces of respective insulating substrates (5) and (6) of the temperature control element
(2) of the relevant temperature control device, in which
said pairs of electrodes (7) and (8) are formed respectively on opposing surfaces of a pair of
insulating substrates (5) and (6) disposed in opposed positions ~~as well,~~

at least one plate (4) of said pair of heat conduction plates (3) and (4) is disposed on an
outside surface of ~~[[an]]~~ one of the insulating ~~substrate~~ substrates (6) after soft soldering is
performed with said thermionic element (9),

~~[[an]]~~ said one of the insulating substrates (6) on which ~~a heat conduction~~ said at least one
plate (4) is disposed after soft soldering ~~has flexibility~~ is flexible, and

in said soft soldering of thermionic element (9), a soft solder (12) in which a layer thickness
control member is mixed is used and is performed while adding a predetermined pressure.

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Claim 2 (Currently Amended): A method of fabricating a temperature control device ~~wherein in a method of fabricating a temperature control device~~ (1) equipped with a temperature control element (2) configured by soft-soldering a thermionic element (9) between ~~[[the]]~~ a pair of opposed electrodes (7) and (8) and a pair of heat conduction plates (3) and (4) disposed respectively on outside surfaces of respective insulating substrates (5) and (6) of ~~the relevant temperature control element~~ (2), in which

the pair of electrodes (7) and (8) are formed respectively on opposing surfaces of a pair of insulating substrates (5) and (6) disposed in opposed positions ~~as well,~~

at least one plate (4) of said pair of heat conduction plates (3) and (4) is disposed on an outside surface of ~~[[an]]~~ one of the insulating substrate substrates (6) after soft soldering is performed,

~~[[an]]~~ said one of the insulating substrate substrates (6) on which ~~a heat conduction~~ said at least one plate (4) is disposed after soft soldering ~~has flexibility;~~ is flexible and

after soft soldering of said thermionic element (9) is performed, a soft solder layer (12a) is flattened by adding a pressure multiplied by 0.8 - 1.5 of yield stress at ~~[[the]]~~ a temperature as well as said soft solder layer (12a) is heated to a temperature which is the fusing point of a soft solder or less and the apparent initial softening point of a soft solder or more.

Claim 3 (Original): The method of fabricating a temperature control device according to claim 2, wherein said soft solder layer (12a) contains a layer thickness control member.

Claim 4 (Currently Amended): A method of fabricating a temperature control device ;
~~wherein in a method of fabricating a temperature control device~~ (1) equipped with a temperature
control element (2) configured by soft-soldering a thermionic element (9) ^{1x3} between a pair of opposed
electrodes (7) and (8) and a pair of heat conduction plates (3) and (4) disposed respectively on
outside surfaces of respective insulating substrates (5) and (6) of the relevant temperature control
element (2), in which

the pair of electrodes (7) and (8) are formed respectively on opposing surfaces of a pair of
insulating substrates (5) and (6) disposed in opposed positions ~~as well~~,

(at least one plate (4) of said pair of heat conduction plates (3) and (4) is disposed on an
outside surface of ~~[[an]]~~ one of said pairs of insulating substrates (6) by making ~~[[the]]~~ a grease layer
(10) stood between,)

the ~~relevant insulating~~ one of said pair of substrates (6) on which ~~a heat conduction~~ said at
least one plate (4) is disposed by making the grease layer (10) stood between ~~has a flexibility~~; is
flexible,)

(after ~~a heat conduction~~ said at least one plate (4) is disposed by making the grease layer (10)
stood between the relevant plate (4) and ~~[[an]]~~ one of said pair of insulating substrate (6), said grease
layer (10) is flattened by adding a pressure ~~of about~~ in a range from 0.6 - 10 kg / cm² as well as
heating ~~to about~~ in a range from 120-170 °C.)

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Claim 5 (Currently Amended): The method of fabricating a temperature control device according to claim 4, wherein after soft soldering of said thermionic element (9) is performed, ^{the} said soft solder layer (12a) is flattened by heating ^{the} a soft solder layer (12a) to a temperature which is the fusing point of a soft solder or less and the apparent initial softening point of a soft solder or more; [[and]]

adding a pressure multiplied by 0.8 - 1.5 of yield stress at [[the]] a relevant temperature as well, and

flattening of said grease layer (10) and the flattening of said soft solder layer (12a) are carried out in the same time period.

Claim 6 (Original): (The method of fabricating a temperature control device according to claim 5, wherein prior to soft-soldering of said thermionic element (9), a heat conduction plate (4) is disposed by making the grease layer (10) stood between the relevant plate (4) and an insulating substrate (6).)

(Claim 7 (Original): The method of fabricating a temperature control device according to claim 5, wherein after soft soldering of said thermionic element (9) is performed, a heat conduction plate (4) is disposed by making the grease layer (10) stood between the relevant plate (4) and an insulating substrate (6).)